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FOREWORD

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Lex L. Merrill 19 Dec 96
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Introduction

When Navy recruits report for basic training, they bring with them individual health care needs, shaped by previous experiences, that can have far-reaching effects during their military careers. Abusive behavior suffered by trainees prior to their entry into the military is an experience that can negatively impact their physical health, psychological well-being, and job performance. Such consequences have implications for the delivery of social and medical services in the military. A conclusion that can be drawn from the interpersonal violence literature is that a significant number of basic trainees enter military service with histories of being victims of abusive behavior (Merrill, Hervig, & Newell, 1995). Furthermore, evidence indicates that victims of abusive behavior have recurrent, identifiable, negative psychological symptoms that appear to have their etiology in past traumatic physical and/or sexual experiences; and abusive histories have been shown to detrimentally impact general health and interpersonal relations, which may lead to poor job performance.

It has been suggested that the stress of military life may result in an increase in abusive behaviors among military personnel (Jensen, Lewis, & Xenakia, 1986). However to disentangle the effect of military life upon abusive behavior, the degree of traumatic symptomatology experienced prior to entering military service must be determined and understood. A study providing an analysis of traumatic symptomatology among U. S. Navy trainees and the relationship to abusive behavior would aid in the development of treatment, education, and prevention programs to enable the optimal resolution of behaviors that may interfere with the performance of basic trainees' current and future duties.

A number of literature reviews have addressed the topic of childhood physical and sexual abuse. Several of these reviews have concluded that a robust relationship exists between histories of childhood physical abuse and an array of problematic behaviors and conditions (Ammerman, Cassisi, Hersen, & Van-Hasselt, 1986; Lamphear, 1985; Malinosky-Rummell, & Hansen, 1993). Other investigators have linked childhood sexual abuse (Bachmann, Moeller, & Benett, 1988; Briere & Runtz, 1993; Browne & Finkelhor, 1986; Fry, 1993; Trickett & Putnam, 1993) or both sexual and physical abuse (Finkelhor & Dziuba-Leatherman, 1994; Glod, 1993; Kessler & MacGee, 1994) to the subsequent need for psychological and somatic health care when victims reach adulthood. In fact, victims of childhood sexual and physical abuse and adult victims of sexual and physical assault have been found to be at an increased risk of incurring long-term adverse somatic and psychological consequences as a result of victimization (Briere & Runtz, 1993; Browne, 1993; Fry, 1993; Koss, 1993a; Salter, 1992; Schafer, Sobieraj, & Hollyfield, 1988; Swett, Cohen, Surrey, Compaine, & Chavez, 1991, Watkins & Bentovim, 1992).

Fry (1993), in a recent review of the child sexual abuse literature, reported prevalence estimates ranging from 4% to 54% for females, whereas Salter (1992) reviewed reports ranging from 11% to 62% for females. Estimates of childhood physical abuse range from 7% to 14% for both genders (National Research Council, 1993). However, Muller (1991) assessed histories of physical abuse in first-year college students, and reported that 37% of the college students surveyed stated they had experienced at least one childhood incident of

"severe violence" from a parent. Adult sexual assault estimates range from 5% to 30% for the prevalence of rape among adult women (Koss, 1993b), with adolescents being at higher risk (Salter, 1992).

Sheldrick (1991) classified the long-term effects of child sexual abuse into four areas: psychological, sexual adjustment, interpersonal relationships, and social functioning. In a more focused review of the sexual abuse literature, Briere and Runtz (1993) separated the psychological consequences of child sexual abuse into six categories that provide a framework for the practical application of assessment strategies. The six categories are posttraumatic stress, cognitive distortions, altered emotionality, disturbed relatedness, avoidance, and impaired self-reference. Other reviewers have attempted to gauge the strength of the association between childhood sexual abuse and specific disorders in adults. Harney (1992) and Murray (1993) have reported that a substantial relationship exists between childhood sexual abuse and sexual disturbance or dysfunction, anxiety and fear, depression and depressive symptomatology, revictimization proneness, low self-esteem, and suicidal ideation and behaviors. Still other assessments of the sexual abuse literature have noted a strong relationship between drug and alcohol abuse (Rew, 1989) and posttraumatic stress disorder (PTSD; Rowan & Foy, 1993) in adults sexually abused as children.

Malinosky-Rummell and Hansen (1993) reviewed the literature on the long-term consequences of childhood physical abuse and found that they could be classified into seven topic areas: academic and vocational difficulties, aggressive and violent behavior, emotional problems, interpersonal problems, nonviolent criminal behavior, self-injurious and suicidal

behavior, and substance abuse. Glod (1993), in a more focused review of the childhood physical abuse literature, reported an association between PTSD, eating disorders, psychosis, and alcohol abuse.

The results of a few studies indicate that a significant number of military veterans and active-duty personnel with somatic and/or psychological complaints, have been victims of childhood abusive behavior (Bremner, Southwick, Johnson, Yehuda, & Charney, 1993; Brown & Anderson, 1991; Crawford & Fiedler, 1992; Raczek, 1992). Bremner et al. (1993) compared two groups of male combat veterans, one with a diagnosis of PTSD ($n = 38$) and one with various somatic complaints ($n = 28$). About 26% of the PTSD example group reported histories of childhood physical abuse compared with 7% of the comparison group. In an investigation of 947 in-patients at a large military hospital, Brown and Anderson (1991) compared the childhood abusive histories of patients to their psychiatric medical histories. About 18% of the sample reported a history of childhood sexual and/or physical victimization. Brown and Anderson (1991) found comparatively high rates of alcohol and drug abuse, suicidality, and Axis II diagnoses (American Psychiatric Association, 1987) in patients with childhood maltreatment histories. Crawford and Fiedler (1992) examined U. S. Air Force basic trainees by comparing 25 successful trainees with 25 trainees who were being discharged because of adverse psychological diagnoses. Only one of the successful group reported a childhood history of abuse, whereas 40% (10) of the group being discharged reported a childhood history of abuse.

Rosen and Martin (1996) surveyed U.S. Army soldiers of various ranks (265 females and 911 males) and reported that 49% of the females and 15% of the males reported they had been sexually abused, contact and noncontact, as children, and 48% of the females and 50% of the males reported histories of childhood physical abuse. Rosen and Martin (1996) concluded that the soldiers who had been victims of childhood abuse had more negative psychological symptomatology than soldiers who had not been abused.

Merrill and colleagues (1995) administered a battery of well-researched instruments to 1,891 female trainees during their first week of basic training to ascertain their pre-enlistment maltreatment histories. They found that 41.4% of the female trainees were the victims of childhood physical abuse, 27.6% were victims of childhood contact sexual abuse, 36.1% of the women indicated they had been the victim of at least one rape, and 9.4% reported being the victim of at least one attempted rape. The relatively high levels of these prevalence rates provides convincing evidence that a substantial number of basic trainees report histories of victimization and perpetration of abusive behaviors. Taken together, the results of studies of the maltreatment histories of military personnel have direct implications for the development of social services and medical treatment, prevention, education, and research programs within the military.

Kessler and colleagues interviewed a nationally representative sample of 5,877 participants to determine the prevalence of PTSD in the general population (Kessler, Sonnega, Bromet, Hughes, Nelson, 1995). They reported a PTSD lifetime prevalence rate of 7.9%, for never married women from 15 to 24 years of age, and a rate of 16.4% for married women in

the same age range. They also found that 79% of the women with lifetime PTSD had a history of at least one other disorder (e.g., affective, anxiety, substance use, or conduct disorders). About 45.9% of the women who reported being raped developed PTSD. Women who listed childhood molestation or childhood physical abuse as their "most upsetting trauma," had a 26.5% and 48.5% probability of developing PTSD. Overall, this study found a higher national prevalence of PTSD than had been predicted by regional studies and that, without treatment, 50% of the people with PTSD will not recover.

The primary objective of this study was to increase military readiness by providing data that may assist in the identification and treatment of trauma victims among military basic trainees. This study had three aims: (1) to determine the effect of premilitary sexual and physical victimization on trauma symptomatology among female basic trainees, (2) to assess the overall level of premilitary trauma symptomatology among female basic trainees, and (3) to evaluate the implications of the results of the study on military psychological and social services and the assignment of women who have not received treatment.

Method

Participants

Participants were 1,051 female U.S. Navy basic trainees. The mean age of the sample was 20.52 years. Ethnically, the sample was 62.4% white, 21.9% black, and 15.8% other. Family incomes of \$7,500 or less was reported by 11.8%, \$7,501 to \$15,000 by 16.0%, \$15,001 to \$25,000 by 18.7%, \$25,001 to \$35,000 by 20.0%, \$35,001 to \$50,000 by 20.9%, and over \$50,000 by 12.6% of the sample. Educationally, the sample consisted of 4.4% who

did not complete high school, 56.7% who had a high school diploma or GED, and 38.9% who had some college. The majority of the sample was single (83.6%), with smaller percentage married (9.9%), divorced/widowed/separated (4.8%), or cohabiting (1.7%).

Test Instruments

Demographic and Family History (DFH) questionnaire. The DFH questionnaire included items related to the respondent's age, race, marital status, educational level, and family (parents) income during the past year.

Conflict Tactics Scale (CTS), Parent-Child (PC) version. A modified CTS Form R (Straus, 1990, p. 33) was used to measure female recruits' recall of the techniques their parents used to resolve parent-child conflicts. The modified CTS PC survey contained 19 items that asked how often a given conflict resolution technique was used by either parents or stepparents during the worst year of the recruit's life before the age of 18 years. For the present study only the five items of the very severe violence subscale scale were scored. The item response format consisted of seven response categories indicating the frequency ("never" to "more than 20 times") with which the conflict resolution technique was used. To obtain scores for the very severe violence subscale, the seven response categories were treated as a 7-point Likert-type scale (scored zero points for "never" to 6 points for "more than 20 times"), and each response score was summed across the items to obtain a total score. Participants who indicated they had experienced one or more of the conflict tactics in the very severe violence subscale were considered to have been physically abused as children. This

scoring procedure is one of several CTS scoring procedures the test author has suggested (Straus, 1990, p. 36). Participants who marked "0" to all CTS items were excluded from the analyses.

A study that used a similar CTS survey to assess parenting behavior (in the family of origin) during physically abusive and nonabusive parents' childhoods reported internal consistency reliabilities of .47, .83, and .85 for the CTS reasoning, verbal aggression, and physical violence subscales, respectively (Caliso & Milner, 1992). In the present study, the internal consistency reliabilities of .54, .84, and .85 were found for the CTS PC reasoning, verbal aggression, and physical violence subscales, respectively.

Michigan Alcoholism Screening Test (MAST). The MAST is a 25-item questionnaire designed as a screening device for the detection of alcoholism (Selzer, 1971). However, the MAST has been widely used as a survey instrument for alcohol problems (e.g., Brady, Foulks, & Childress, 1982; Storgaard, Nielsen, & Gluud, 1994). The MAST items have a yes/no response format with weighted item-scoring criteria, which scores 24 MAST items, excluding item 7 from the total score (Selzer, 1971).

During the coding of the surveys, it was noted that some respondents wrote on the MAST that they did not drink and then proceeded to mark all MAST items "no," apparently without reading the items. Marking all items "no" results in a score of 8 points, which is above the cutoff score of 5 points Selzer (1971) used to indicate that a respondent is an "alcoholic." A nondrinking respondent who read the items would have to answer several of

the MAST items with a "yes" to earn a zero score. Therefore, to ensure that subjects who had never drunk were not scored erroneously as having alcohol problems, all respondents who marked "no" for all MAST items were excluded from the analyses.

Using male and female psychiatric patients, Zung (1982) reported an internal consistency reliability of .91 for the MAST when the test was used to assess lifetime alcohol problems. Zung also reported a MAST test-retest reliability for lifetime alcohol problems across a 1-day interval was .97. In another group of psychiatric patients, Skinner and Sheu (1982) reported that the MAST test-retest reliability for an interval of 4.8 months was .84. In the present study, the internal consistency for the MAST for lifetime alcohol problems was .68.

With respect to the individual classification rates of MAST scores, Storgaard and colleagues (1994) reviewed existing validity studies and found variable degrees of test sensitivity, ranging from .36 to .98, and selectivity, ranging from .57 to .96. Although the definition of what constitutes alcoholism varied from study to study, Storgaard and colleagues indicated that, across studies, a substantial relationship (.91) was found between the MAST positive predictive value (ratio of true positive classifications to all positive classifications) and the prevalence of alcohol problems. Although the data suggest caution should be used in using the MAST scores for individual classification purposes, the data indicate that the MAST has some utility as a screening instrument for detecting lifetime alcohol problems, especially when used on a group basis, as in the present study.

Sexual Events Questionnaire (SEQ). A modified version of the SEQ (Finkelhor, 1979) assessed respondents' experiences with sexual acts before the age of 14. The acts were listed in hierarchical order of severity, from seeing another person's sexual organs to having vaginal intercourse with a member of the opposite sex. Participants who indicated they had, prior to the age of 14, physical-sexual contact with someone who was 5 or more years older were defined as having experienced childhood sexual abuse. Participants who reported peer sexual experience that did not include the use of authority, bribes, threats of force, or force, were excluded from the analyses.

Sexual Experiences Survey (SES). A five item version of the SES was used to assess sexual aggression since the participant's 14th birthday (Koss & Gidycz, 1985; Koss & Oros, 1982). This version of the SES measures attempted rape and rape. These questions were answered with either a "yes" or "no." For each question answered "yes," participants indicated how long ago the experience occurred among one of five options that ranged from "less than 3 months" to "more than 2 years." SES internal stability (alpha) for the abuse scale is .74 for college women. A mean item agreement of 93% was found when SES administrations (for men) were one week apart for the 11-item version (Koss & Gidycz, 1985). In the present study the internal consistency (alpha) for the SES was .62.

Trauma Symptom Inventory (TSI). The TSI (Briere, 1995) measures posttraumatic symptomatology (including PTSD symptoms) resulting from interpersonal and noninterpersonal events. The TSI contains 100 items describing different behaviors, feelings, or attitudes. The TSI is composed of 10 clinical and 3 validity scales. The 10 clinical scales

are Anxious Arousal (AA), Depression (D), Anger/Irritability (AI), Intrusive Experiences (IE), Defensive Avoidance (DA), Dissociation (DIS), Sexual Concerns (SC), Dysfunctional Sexual Behavior (DSB), Impaired Self-Reference (ISR), and Tension Reduction Behavior (TRB). The 3 validity scales are Atypical Response (ATR), Response Level (RL), and Inconsistent Response (INC).

As recommended by Briere (1995), participants who did not respond to 10 or more TSI items or who had invalid protocols were excluded from the analyses. Additionally, participants with elevated validity scale scores were deleted from the analyses. Specifically, participants with ATR T scores 90 or higher, RL T scores of 73 or higher, or INC T scores of 75 or higher of were deleted from the analyses. Finally, scales that had two or missing responses were excluded from the analyses.

Pertinent to the purposes of the present study are the scales that comprise the Trauma Scales: AA, D, IE, DA, and DIS. Although all 10 scales are related to trauma symptoms, factor analysis has revealed two primary sources of variance, Trauma Scales, which are indicative of trauma symptomatology, and the Self Scales (DSB, TRB, SC, and AI), which are related to dysfunctional behavior that may be indicative of personality disorders. Elevations on both the Trauma Scale and Self Scale are indicative of a complicated trauma victim (Briere, 1995).

Briere (1995) reported TSI clinical scale reliability estimates, for a standardization sample ($N = 828$), of .86 for AA, .91 for D, .90 for AI, .89 for IE, .90 for DA, .82 for DIS, .87 for SC, .85 for DSB, .88 for ISR, and .74 for TRB. The present study found similar internal consistency estimates of .82 for AA, .88 for D, .89 for AI, .87 for IE, .88 for DA, .83 for DIS, .86 for SC, .88 for DSB, .85 for ISR, and .78 for TRB.

Design and Procedure

The survey questionnaires used in the present study were administered as part of a more extensive survey package that was offered to Navy basic trainees during their first week at the Recruit Training Command (RTC). Data collection began in January 1994 and was completed in April 1994. The survey was administered in a classroom setting by two (male and female) U.S. Navy hospital corpsmen who were psychological technicians with previous experience in administering psychological tests.

In the process of requesting that trainees participate in the study, a corpsman read a description of the study. Trainees who agreed to participate were given a Privacy Act statement and an informed consent that included a detailed description of the study and the procedures used to ensure anonymity. In addition, prior to the beginning of the study, the Privacy Act statement and the informed consent were read to the participants. Participants were told that they could "leave blank any section or questions that (you) do not want to answer" and that they were "free to stop at any time before completing the survey." In the event that the recall of past traumatic experiences caused respondent distress, participants were informed that professional counseling would be provided upon request.

The sample ($N = 1,051$) was divided into four groups to allow for an examination of the effect of childhood physical and/or sexual abuse on the adult expression of trauma symptomatology and self-reported histories of alcohol misuse by female trainees. The four groups were composed of (Group I; $n = 523$) women who did not experience childhood sexual abuse or physical abuse, (Group II; $n = 113$) women who experienced only childhood physical abuse, (Group III; $n = 248$) women who experienced only childhood sexual abuse, and (Group IV; $n = 167$) women who experienced childhood sexual and physical abuse.

The same sample ($N = 1,051$) was divided into two groups to allow for an investigation of the effect of adult sexual assault (rape) on the expression of trauma symptomatology and self-reported histories of alcohol problems. Participants who indicated on the SES that they had not been raped were placed in Group A ($n = 661$), and participants who responded positively to any of the SES rape items were placed in Group B ($n = 358$).

The demographic variables of ethnicity, education, family income, and geographic region were examined with chi-square analyses. These analyses may yield significant differences when large sample sizes are used; therefore, a conservative significance level of .01 was used. For significant findings, effect sizes (w for chi-squares) were calculated using Cohen's (1988) method to allow for a determination of their practical value. Cohen (1988) stated that w 's of .10, .30, and .50 signify small, medium, and large effect sizes, respectively. Effect sizes (d for t-tests, f for analyses of variance [ANOVAs]) were computed for significant t-test results

and ANOVAs. Cohen (1988) stated that d 's of .2, .5, and .8 signify small, medium, and large effect sizes, respectively; and f 's of .10, .25, and .40 signify small, medium, and large effect sizes, respectively.

Results

The demographic variables of ethnicity, family income, education, and marital status were analyzed with chi-square analyses and no significant differences were found between groups I, II, III, and IV. Chi-square analyses of the same demographic variables for Groups A and B revealed significant differences for ethnicity, $\chi^2(2, 1015) = 12.93, p = .002, w = .11$; and family income, $\chi^2(5, 1000) = 16.10, p = .006, w = .13$; but not for education or marital status. Fewer black women (25.7%) than white (39.0%) or women in the "other" ethnic category (33.3%) reported adult sexual assault. A larger percentage of women who reported sexual assault came from families with incomes between \$7,500 to \$25,000 (47.2%) than women from families with incomes between \$25,001 to \$50,000 (36.2%) or incomes higher than \$50,000 (16.7%). An ANOVA found no significant differences between groups I, II, III, and IV for years of age; however, a t-test of Groups A and B did reveal a significant difference for age, $t(1, 1019) = 2.64, p = .008, d = .16$. The mean ages of Group A and B were 20.7 ($SD = 3.02$) and 20.2 ($SD = 2.55$) years, respectively.

Analysis of TSI Data

Groups I, II, III, and IV. An omnibus multivariate analysis of variance (MANOVA) was conducted to examine the effect of childhood abuse history (none, childhood physical abuse only, childhood sexual abuse only, and childhood physical and sexual abuse) on trauma

symptomatology (10 TSI clinical scale scores: AA, D, AI, IE, DA, DIS, SC, DSB, ISR, TRB). The MANOVA for the main effect of Group was significant, Wilk's lambda = .91962, $p < .01$. Subsequently, as shown in Table 1, ANOVAs, Tukey Honestly Significant Difference Tests (Tukey HSDT), and effect sizes (Cohen, 1988) were computed to determine specific group differences for each of the 10 TSI clinical scales. The raw score means and standard deviations for the TSI clinical scales for the total sample, and Groups I, II, III, and IV are shown in Appendix A.

Insert Table 1 about here

Groups A and B. A MANOVA was computed to examine the effect of adult sexual assault history (not raped, raped) on trauma symptomatology (10 TSI clinical scale scores). The MANOVA for the main effect of Group was significant, Wilk's lambda = .85663, $p = .000$. Post hoc t-tests were computed to estimate group differences and effect sizes for each of the 10 TSI clinical scales, and the results are shown in Table 2. Ten post hoc comparison tests were computed; therefore, a Bonferroni adjustment was calculated (.05/10), and the resulting significance level was .005.

Insert Table 2 about here

Supplemental Post Hoc Analyses

A series of exploratory analyses were completed to aid in assessing the extent of trauma symptomatology in the sample of female trainees. Appendix B shows the percentage of participants with T scores of 65 or higher for Groups I, II, III, IV, A, and B. Briere (1995) stated that all TSI clinical scales with T scores greater than or equal to 65 should be considered clinically significant. Although all 10 scales are related to trauma symptoms, factor analysis has revealed two primary sources of variance, Trauma Scales, which are indicative of trauma symptomatology, and Self Scales, which are associated with dysfunctional behavior that may be indicative of personality disorders (Briere, 1995). Appendix C was created by computing the percentage of participants who had a T score of 65 or more on three or more of the Trauma Scales (AA, D, IE, DA, and DIS) and/or two or more of the Self Scales (DSB, TRB, SC, and AI). Additionally, Briere (1995) recommended that clients with elevated D, TRB, or those with one or more positive responses to TSI critical items, suicidal ideation, or suicidal behavior be clinically evaluated. Therefore, the percentage of participants, by group, with positive responses to the suicidal ideation and/or suicidal behavior items were computed and are shown in Appendix D. An ANOVA (Groups x Mean Critical Items) found that groups I, II, III, and IV significantly differed, $F(3, 1,048) = 31.62$, $p < .01$, $f = .28$. A Scheffè multiple comparison test showed that Group I ($M = 1.92$, $SD = 3.01$) was significantly different from groups III ($M = 4.17$, $SD = 5.05$) and IV ($M = 5.20$, $SD = 5.76$); group II ($M = 3.28$, $SD = 4.08$) was significantly different from group IV. A t-test of the mean group critical item scores for Groups A and B found a significant

difference between the groups, $t(1, 1004) = 7.35$, $p < .000$, $d = .39$. The mean number of critical items endorsed by Groups A and B were 2.36 ($SD = 3.53$) and 4.41 ($SD = 5.25$), respectively.

MAST Analysis

An ANOVA computed for the MAST scores of Groups I, II, III, and IV found that the groups did not differ significantly, $F(3, 925) = 2.34$, $p = .072$. The MAST score means for Groups I, II, III, and IV were 4.66 ($SD = 4.61$), 5.01, ($SD = 5.25$), 5.21 ($SD = 5.00$), and 5.83 ($SD = 4.93$), respectively. A t-test of the mean MAST scores for Groups A and B revealed a significant difference between the groups, $t(1, 906) = 5.76$, $p < .001$, $d = .32$. The MAST mean scores for Groups A and B were 4.34 ($SD = 4.06$) and 6.23 ($SD = 5.81$), respectively.

Discussion

The results of this study show that, for a large group of female U.S. Navy basic trainees, self-reported victims of childhood abuse and adult sexual assault evidence significantly more trauma symptomatology than nonvictims. Victims of only childhood sexual abuse and victims of both childhood sexual abuse and childhood physical abuse had significantly higher scores on all 10 TSI clinical scales than participants who did not report a history of childhood abuse. Victims of only childhood physical abuse had significantly higher scores, on all TSI clinical scales, except the Sexual Concerns scale, than participants who did not report a childhood history of physical or sexual abuse. Additionally, TSI items related to suicidal behavior and ideation were positively endorsed by substantially more trainees who were

victims of childhood abuse or adult sexual assault than by nonvictims. Overall, the results suggest that childhood abuse has a serious impact on the adult expression of self-reported trauma symptomatology. Similarly, female trainees who had experienced rape as an adult had significantly higher scores on all of the TSI clinical scales compared with female trainees who had not experienced adult rape. Victims of rape as adults reported suicidal behavior and ideation at approximately twice the rate of nonvictims. Taken together, the female U.S. Navy basic trainees, in this sample, who experienced childhood physical and/or sexual assault or adult sexual assault prior to entering the Navy reported substantially higher levels of trauma symptomatology.

Using a criterion of a T score of 65 or more, the present study found that 6.9% of the total sample had elevated scores on 3 or more of the scales that comprise the Trauma Scale. Although elevations on the Trauma Scale should not be interpreted as a diagnosis of PTSD, the 6.9% is very similar to the 7.8% prevalence rate of PTSD found in a nationally representative sample of 15 to 24 year old women (Kessler et al., 1995). Using these same criteria, 3.3% of Group I, 3.5% of Group II, 11.3% of Group III, and 15.0% of Group IV had elevated Trauma Scale scores (see Appendix C). Although Briere (1995) recommended that clinical judgment be used in the evaluation of TSI profiles, the preceding criterion were established to allow for a descriptive presentation of the data and should not be interpreted as clinical judgement. An interview by a clinician supplemented with further testing would be appropriate for elevated TSI profiles.

Briere (1995) recommended the evaluation of clients for suicidality when their Depression and/or Tension Reduction Behavior scores are "above average," however, for the present study a more conservative criteria of a T score of 65 or more was used. About 10.4% of the total sample had T scores of 65 or higher on the D scale, 8.8% had T scores of 65 or higher on the TRB scale, and 4.7% had T scores of 65 or higher for both the D and TRB scales (see Appendix D). Three TSI critical items were designed to specifically assess suicidality, one of these items relates to suicidal behavior and the other two are associated with suicidal ideation. The results of the present study show that 7.4% of the total sample indicated a history of suicidal behavior and 23.5% a history of suicidal ideation with higher rates of both suicidal behavior and ideation present in the childhood abuse and sexual assault groups. Specific, and expected (Briere, 1995), scale differences were found between groups. For example, about 4.0% of both Group I and Group A had SC and DSB T scores of 65 or higher, while more than 17% of Group IV and Group B had T scores of 65 or higher for both the SC and DSB scales (see Appendix B). Similar elevations can be seen on all clinical scales for Groups III, IV, and B.

These elevated TSI scale scores have serious implications for the assessment and assignment of personnel because, when personnel with elevated symptomatology are exposed to significant stressors, their symptomatology may worsen and lead to dysfunctional behavior (Davidson & Foa, 1992). More specifically, studies of veterans have shown a strong relationship between childhood abusive histories and the development of combat-related PTSD (Bremner et al., 1993; Engel, Engel, Campbell, McFall, Russo, & Katon, 1993).

In general, despite using different methodology and instrumentation, the results of the present study are congruent with those of Rosen and Martin (1996) who studied a large group of active-duty U.S. Army personnel. They also found higher rates of negative psychological symptomatology among participants who reported childhood histories of abuse. Rosen and Martin (1996), however, did not investigate the effect of adult sexual assault on psychological symptomatology.

This study had several limitations that may restrict the interpretation of the results. The effect of multiple experiences of abuse, childhood and adult, were not examined in the present study. The impact of adult histories of sexual assault on trauma symptomatology may be more severe than childhood histories of abuse; therefore, the present exploratory study, examined the effects of childhood histories and adult histories separately. Additionally, the creation of groups that included various combinations of abuse histories would have reduced the group sizes significantly and limited the data analyses and confused the interpretation of the results. More sophisticated analyses, however, need to be completed to determine the combined effect childhood physical and sexual abuse and adult physical and sexual abuse on trauma symptomatology.

This study did not collect complete trauma histories; factors other than physical and sexual abuse may result in elevated TSI scale scores (i.e., witnessing or being the victim of other forms of violence, being involved in serious accidents or natural disasters). Although the TSI has good convergent validity, no other measure of trauma symptomatology was used in the present study. It may be that the trainees' elevated TSI scores were the result of

simply being in a highly stressful environment. Although trainees' TSI scores may have been affected by the stress of adjusting to the military environment, this environment should have affected all groups equally, not in terms of subjective perception but in terms of objective presentation. The multigroup design of this study, therefore, limits the possibility that elevated scores may be attributed to the recruit training environment.

Child physical abuse was measured in the present study with the CTS but no data were collected concerning physical injuries. Straus and Gelles (1990) have stated, however, that the criteria used in the present study are "universally recognized" as comprising child physical abuse. Participants in this study were asked about child physical abuse that occurred prior to the age of 18 and child sexual abuse that occurred prior to the age of 14. Although this is a limitation of the present study, Wauchope and Straus (1990) have shown that very severe physical violence is directed at children of all ages; however, the majority of the abuse appears to be directed at children who are less than 14 years of age. Finally, it is unknown whether the results of this study can be generalized to female basic trainees in other military services or to all female Navy basic trainees; this must be determined by large-scale studies of all of the services.

The present study is the first investigation of trauma symptomatology in a large sample of female military basic trainees. This study contains data that indicates that a significant percentage of female trainees report symptomatology associated with premilitary trauma. The affect of abusive histories and trauma symptomatology on future performance and other factors are unknown. Therefore, data related to abusive histories and trauma

symptomatology are being collected from a large sample of female and male U.S. Navy basic trainees. These trainees will be reexamined at regular intervals to determine the long-term impact of histories of abusive behavior on various factors, such as performance, health care utilization, and attrition.

In summary, this study had three aims: (1) to determine the effect of premilitary sexual and physical victimization on trauma symptomatology among female basic trainees, (2) to assess the overall level of premilitary trauma symptomatology among female basic trainees, and (3) to evaluate the implications of the results of the study on military psychological and social services and the assignment of women who have not received treatment. The aims were accomplished by evaluating the self-reported abusive histories and trauma symptomatology of a large sample of female trainees. Although the original hypotheses of this study were modified, due to the insufficient sample size of the subgroups, the aims of the study were successfully addressed.

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Table 1

F Ratio, Effect Size, and Tukey Results for the TSI Clinical Scales for
Groups I, II, III, and IV

<u>TSI Scale</u>	<u>F*</u>	<u>Effect Size**</u>	<u>Tukey HSDT by Group***</u>
AA	14.78	Small, .20	I < II, III, IV
D	19.93	Small, .23	I < II, III, IV
AI	20.75	Small, .24	I < II, III, IV
IE	30.71	Medium, .33	I < II, III, IV; II < III, IV
DA	34.08	Medium, .31	I < II, III, IV; II < IV
DIS	27.36	Medium, .27	I < II, III, IV
SC	30.71	Medium, .28	I < III, IV; II < III, IV
DSB	28.10	Medium, .27	I < II, III, IV; II < IV
ISR	22.27	Medium, .25	I < II, III, IV
TRB	27.19	Medium, .26	I < II, III, IV; II < IV

* $p < .0001$; ** Small = .10, Medium = .25, Large = .40; *** $p < .05$

Table 2

t-test Values, Means, and Effect Sizes for the TSI

Clinical Scales for Groups A and B

<u>TSI Scale</u>	<u>t*</u>	<u>Mean (SD)</u>		<u>Effect</u>
		<u>Group A</u>	<u>Group B</u>	<u>Size**</u>
AA	7.09	6.31 (5.81)	8.67 (5.41)	.56
D	7.16	5.56 (5.01)	8.07 (4.83)	.50
AI	7.17	7.04 (5.88)	9.97 (6.77)	.43
IE	9.84	5.26 (5.27)	8.93 (6.30)	.58
DA	10.11	7.62 (6.24)	11.93 (6.69)	.64
DIS	7.60	5.00 (4.76)	7.56 (5.69)	.45
SC	10.03	3.47 (4.42)	7.00 (6.71)	.53
DSB	11.10	3.34 (4.47)	7.40 (7.12)	.57
ISR	8.69	6.70 (5.51)	10.02 (6.30)	.53
TRB	9.87	2.96 (3.53)	5.59 (4.85)	.54

* $p < .005$; ** Small = .2, Medium = .5, Large = .8

Appendix A

Raw Score Means and Standard Deviations for the TSI Clinical Scales for Groups I, II, III, and IV

		<u>TSI Scale</u>									
<u>Group</u>		<u>AA</u>	<u>D</u>	<u>AI</u>	<u>IE</u>	<u>DA</u>	<u>DIS</u>	<u>SC</u>	<u>DSB</u>	<u>ISR</u>	<u>TRB</u>
Total Sample	M	7.11	6.45	8.06	6.53	9.11	5.87	4.67	4.73	7.87	3.88
	SD	5.16	5.45	6.36	5.91	6.72	5.27	5.57	5.85	6.01	4.24
I	M	6.10	5.26	6.62	4.79	7.22	4.48	3.22	3.23	6.41	2.82
	SD	4.81	4.60	5.60	4.93	6.09	4.27	4.26	4.35	5.37	3.21
II	M	7.73	6.99	8.70	6.48	9.52	6.75	4.50	4.82	8.74	4.00
	SD	4.80	5.12	5.85	5.32	5.87	5.16	4.71	5.08	5.68	3.66
III	M	8.01	7.31	9.30	8.30	10.87	7.09	6.23	6.29	9.32	4.92
	SD	5.26	5.94	6.84	6.38	6.95	5.81	6.42	6.98	6.15	4.90
IV	M	8.60	8.60	10.40	9.47	12.23	7.90	7.08	7.11	9.76	5.56
	SD	5.66	6.41	7.09	6.49	6.92	6.10	6.87	7.14	6.79	5.33

Appendix B

Percentage of T Scores of 65 or Higher for the TSI Clinical Scales by Group

<u>Group</u>	<u>TSI Scale</u>									
	<u>AA</u>	<u>D</u>	<u>AI</u>	<u>IE</u>	<u>DA</u>	<u>DIS</u>	<u>SC</u>	<u>DSB</u>	<u>ISR</u>	<u>TRB</u>
I	6.9	5.4	5.8	4.6	3.5	4.2	4.4	4.4	5.8	3.6
II	9.3	9.7	6.5	7.5	6.5	8.4	5.6	6.5	12.1	8.0
III	16.6	15.7	12.1	15.8	13.0	12.6	15.8	15.4	12.1	13.7
IV	19.3	18.0	14.9	21.1	21.7	14.9	17.4	19.3	18.0	17.4
Total Sample	11.4	10.3	8.8	10.2	8.9	8.3	9.3	9.6	9.7	8.6
A	7.8	7.4	6.1	5.5	5.4	5.2	4.4	4.1	6.1	4.9
B	18.0	16.1	13.5	18.9	15.5	13.8	18.6	19.7	16.1	16.1
Total Sample	11.4	10.3	8.7	10.2	8.9	8.2	9.4	9.6	9.6	8.7

Appendix C

Percentage of Total Sample and Each Group With Elevated Trauma,

Self, and Trauma and Self Scores*

<u>Group</u>	<u>Scale</u>							
	<u>Trauma</u>		<u>Self</u>		<u>Trauma & Self</u>		<u>Total Trauma**</u>	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Total Sample	23	2.4	51	5.2	50	4.8	73	6.9
I	8	1.6	14	2.8	9	1.7	17	3.3
II	2	1.9	4	3.7	2	1.8	4	3.5
III	8	3.9	24	10.9	20	8.1	28	11.3
IV	6	3.6	9	6.3	19	11.4	25	15.0
<hr/>								
Total Sample	21	2.3	49	5.2	49	4.8	70	6.9
A	8	1.3	16	2.5	15	2.3	23	3.5
B	13	4.5	33	10.6	34	9.5	47	13.1

* Percentages are mutually exclusive for the Trauma, Self, and Trauma & Self categories.

Total Trauma was computed by adding the Trauma and Trauma & Self categories.

Appendix D

Percentage of Total Sample Each Group With T Scores of 65 or Higher for the
D Scale and TRB Scale, and Suicidality Items

<u>Group</u>	<u>Scale</u>						<u>Suicidality*</u>			
	<u>D</u>		<u>TRB</u>		<u>D & TRB</u>		<u>Behavior</u>		<u>Ideation</u>	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Total Sample	108	10.3	91	8.6	49	4.7	78	7.4	247	23.5
I	28	5.4	19	3.6	9	1.7	12	2.3	82	15.7
II	11	9.7	9	8.0	1	0.9	11	9.7	33	29.2
III	39	15.7	34	13.7	21	8.5	23	9.3	69	27.9
IV	30	18.0	29	17.4	18	10.8	32	19.2	63	37.7
A	48	7.4	32	4.9	17	2.6	37	5.7	117	17.7
B	57	16.1	57	16.1	31	8.7	38	10.7	122	34.0
Total Sample	105	10.3	89	8.7	48	4.7	75	7.4	239	23.4

* Responded positively to one or more items.

Appendix E

Bibliography of Publications, Meeting Abstracts, and Listing of Personnel Receiving Pay

From the Negotiated Effort

1. Publications and Abstracts: None.
2. Personnel Receiving Pay:
 - a. Lex L. Merrill, Ph.D.
 - b. Carol E. Newell, M.A.
 - c. Joel S. Milner, Ph.D.
 - d. Steven R. Gold, Ph.D.



DEPARTMENT OF THE ARMY
US ARMY MEDICAL RESEARCH AND MATERIEL COMMAND
504 SCOTT STREET
FORT DETRICK, MARYLAND 21702-5012

REPLY TO
ATTENTION OF:

MCMR-RMI-S (70-1y)

9 Mar 98

MEMORANDUM FOR Administrator, Defense Technical Information
Center, ATTN: DTIC-OCP, Fort Belvoir,
VA 22060-6218

SUBJECT: Request Change in Distribution Statement

1. The U.S. Army Medical Research and Materiel Command has reexamined the need for the limitation assigned to technical reports written for the following contracts. Request the limited distribution statement for these contracts be changed to "Approved for public release; distribution unlimited." These reports should be released to the National Technical Information Service.

Contract Number


Accession Document Number

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96MM6653
96MM6654

ADB224557
ADB230013
ADB219041
ADB227588
ADB229897
ADB227721
ADB229924
ADB220033
ADB221466
ADB222409

2. Point of contact for this request is Ms. Betty Nelson at
DSN 343-7328 or email: betty_nelson@ftdetrck-ccmail.army.mil.

FOR THE COMMANDER:


PHYLLIS M. RINEHART
Deputy Chief of Staff for
Information Management

Completed
2-8-2000
B.W.